ABSTRACT OF THE DISCLOSURE

An optical imaging system is provided that includes a rod lens array and has the optimum refractive index distribution for achieving a high resolving power. The refractive index distribution of rod lenses can be expressed by

Eq. 45 $n(r)^2 = n_0^2 \cdot \{1 - (g \cdot r)^2 + h_4 \cdot (g \cdot r)^4 + h_6 \cdot (g \cdot r)^6 + h_8 \cdot (g \cdot r)^8\}$

where r is a radial distance from the optical axis of the rod lenses, n_0 is a refractive index on the optical axis of the rod lenses, and g, h_4, h_6 and h_8 are refractive index distribution coefficients. The refractive index distribution coefficients h_4, h_6 and h_8 are set on a spheroid in a Cartesian coordinate system with h_4 being x-axis, h_6 being y-axis and h_8 being z-axis. The spheroid is defined by a vector X* that is expressed by

Eq. 46 $X^* = (x, y, z) = O^* + k_A A^* + k_B B^* + k_C C^*$

where O* is a vector from the origin of the Cartesian coordinate system to the center of the spheroid, A*, B* and C* are vectors in the directions of the major axis, the mean axis and the minor axis of the spheroid, respectively, and k_A, k_B and k_C satisfy $k_A^2 + k_B^2 + k_C^2 \leq 1$.